¿Tendremos que volver a aprender a diagnosticar sarampión?

Mª José Cilleruelo Ortega

Pediatra

Secretaria del CAV-AEP

Madrid

Ningún conflicto de interés para esta presentación

Noviembre 2017
Lactante de 10 meses.
Fiebre elevada (39.8ºC) de 72 horas de evolución con hiperemia y secreción conjuntival bilateral, rinorrea espesa, tos. Irritabilidad/decaimiento

Acude por persistencia de síntomas e inicio hace 24 horas de exantema maculopapular confluente eritematoso intenso de comienzo en cabeza y cara y extensión generalizada.

XIV JORNADAS DE VACUNAS AEP

OURENSE, 14 Y 15 DE ABRIL DE 2023

Sarampión

- **Paramixovirus**
- **Epidemiología**:
  - Muy contagiosa. Transmisión respiratoria. Reservorio exclusivamente humano
  - Contagio desde 7 días antes del exantema hasta 4 días después
- **Incubación**: 10-12 días
- **Clínica**:
  - Fase prodrómica o catarral. Fiebre alta, tos, conjuntivitis,…
  - Fase exantemática. Exantema maculopapular confluente muy eritematoso, generalizado
- **Complicaciones**:
  - Otitis (8-10 %). Neumonías (1-6 %)
  - Encefalitis (1/1000). PES (1/100 000)
  - Mortalidad: 1-3/1000

BROTES:
-Menores de 12 meses
-Inmigrantes
- Adultos no vacunados

ENFERMEDAD PREVENIBLE CON VACUNA

¿Tendremos que volver a aprender a diagnosticar sarampión?

SÍ

¿Qué está pasando con el sarampión?

¿Qué está pasando con el sarampión en el mundo?

Organización Mundial de la Salud

Temas de salud | Países | Centro de prensa | Emergencias

Acceso / Comunicados de prensa / Casi 40 millones de niños están en peligro por su exposición

Casi 40 millones de niños están en peligro por su exposición a la creciente amenaza del sarampión

Un nuevo informe de la OMS y los CDC revela que el sarampión representa una amenaza inminente en todo el mundo.

23 de noviembre de 2022 | Comunicado de prensa conjunto

La cobertura vacunal contra el sarampión ha disminuido de forma sostenida desde el comienzo de la pandemia de COVID-19. En 2021, casi 40 millones de niños no recibieron su dosis de la vacuna contra el sarampión, lo que supone un número sin precedentes: 25 millones de niños no recibieron su primera dosis y otros 14,7 millones no recibieron la segunda, según se informa en una publicación conjunta de la Organización Mundial de la Salud (OMS) y los Centros para el Control y la Prevención de Enfermedades (CDC) de los Estados Unidos. Este descenso supone un importante retroceso en el avance mundial hacia el logro y el mantenimiento de la eliminación del sarampión, y deja a millones de niños expuestos a la infección.

Se estima que en 2021 hubo 9 millones de casos de sarampión que provocaron 128 000 muertes en todo el mundo. Un total de 22 países sufrieron grandes brotes causantes de perturbaciones. La disminución de la cobertura vacunal, el debilitamiento de la vigilancia del sarampión y las continuas interrupciones y retrasos de las actividades de inmunización debido a la COVID-19, además de la persistencia de grandes brotes durante el año 2022, hacen que el sarampión sea una amenaza inminente en todas las regiones del mundo.

Organización Mundial de la Salud

Sarampión

20 de marzo de 2023

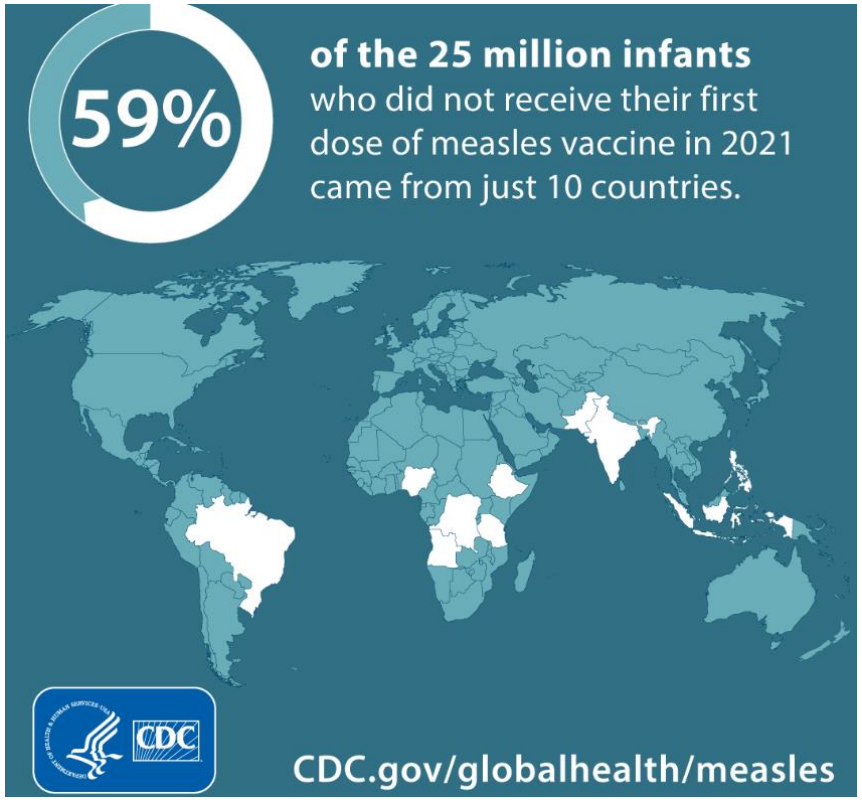
Datos y cifras

20 de marzo de 2023

Hechos clave

- Si bien existe una vacuna segura y rentable, en 2018 hubo más de 140 000 muertes por sarampión en todo el mundo, principalmente entre niños menores de cinco años.
- La vacunación contra el sarampión resultó en una caída del 73% en las muertes por sarampión entre 2000 y 2018 en todo el mundo
- En 2018, alrededor del 86% de los niños del mundo recibieron una dosis de la vacuna contra el sarampión antes de su primer cumpleaños a través de los servicios de salud de rutina, frente al 72% en 2000.
- Durante 2000-2018, la vacunación contra el sarampión evitó aproximadamente 23,2 millones de muertes, lo que convirtió a la vacuna contra el sarampión en una de las mejores compras en salud pública.

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™



Top 5 countries with reported measles cases in the last 12 months, until April 2022 [1]

Country	Reported Measles cases	Rate per million cases	First dose measles coverage (%), 2019[2]	First dose measles coverage (%), 2020[3]
Somalia	9,068	554	46	46
Yemen	3,629	119	67	68
Afghanistan	3,628	91	64	66
Nigeria	12341	58	54	54
Ethiopia	3039	26	60	58

Top 10 Countries with Global Measles Outbreaks*

Rank	Country	Number of Cases
1	India**	47,979
2	Yemen	11,858
3	Somalia	5,064
4	Ethiopia	3,926
5	Indonesia	3,814
6	Zimbabwe	3,562
7	Pakistan	2,443
8	Democratic Republic of the Congo***	2,112
9	Angola	1,874
10	Nigeria	1,558

Provisional data based on monthly data reported to WHO (Geneva) as of early March 2023. Data covers August 2022 – January 2023.

Map: Countries in Africa with reported measles outbreaks March 02, 2023

nature

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nature › news › article

NEWS | 22 December 2022 | Correction 27 December 2022

Massive measles outbreak threatens India's goal to eliminate disease by 2023

Many children missed routine vaccinations during the COVID-19 pandemic and pockets of the country are still struggling to boost immunization rates.

Measles - Nepal

14 March 2023

PAHO

Pan American Health Organization · World Health Organization Regional Office for the Americas

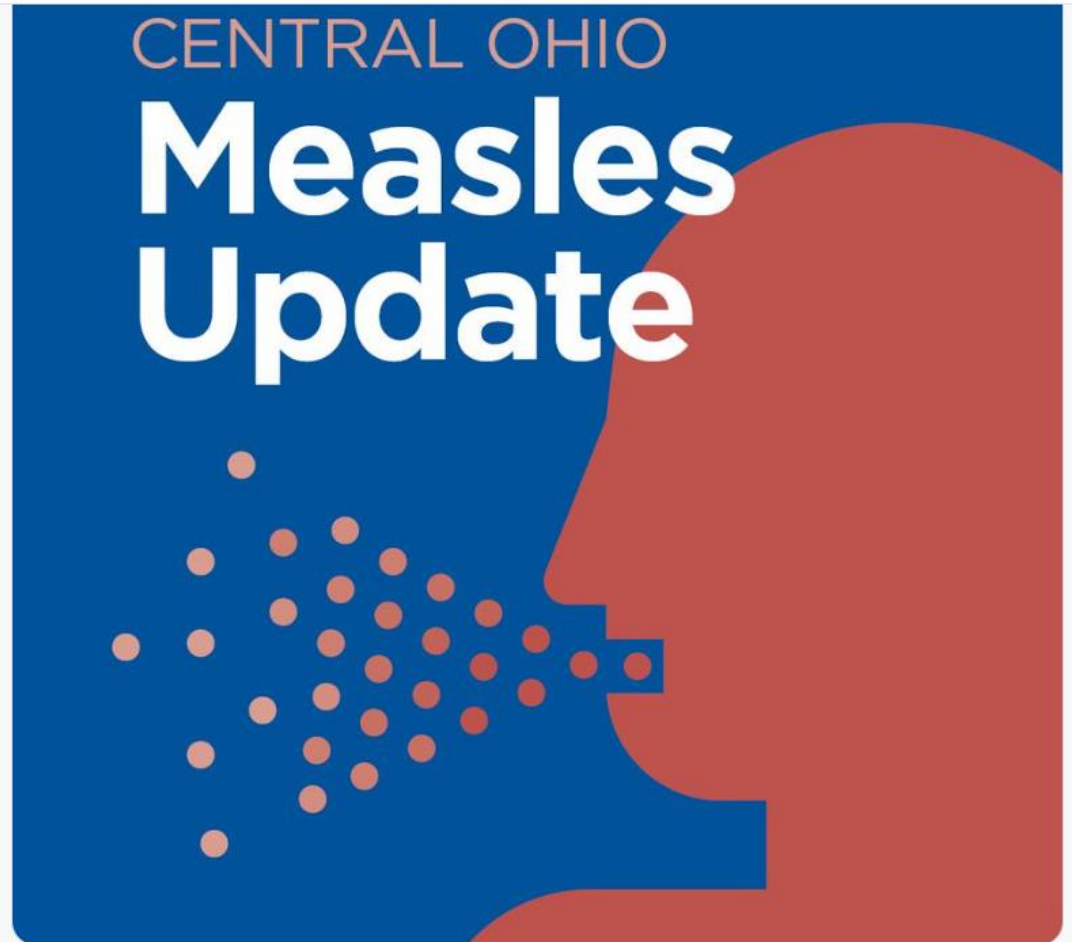
Epidemiological Alert Measles

8 February 2023

Summary of the situation

After the WHO Region of the Americas was declared measles-free in 2016, a steady increase in imported measles cases from other WHO Regions and between countries within the Region of the Americas was observed between 2017-2019. The highest regional incidence rate was reported in 2019, with 21.5 cases per million population. The increase in cases was related to measles outbreaks reported in Brazil and the Bolivarian Republic of Venezuela, which contributed to 93% of the cases reported during that period. The rash onset date of the last confirmed case of measles in the Bolivarian Republic of Venezuela was 11 August 2019 (*1*), while in Brazil it was 5 June 2022[1].

In 2020, the number of confirmed measles cases decreased by 2.7 times compared to 2019, with outbreaks reported in Argentina and Mexico. Between 2020 and 2022, endemic circulation of the measles virus continued in Brazil (*1*). Additionally, between 2021 and 2022, confirmed cases of measles were reported in Argentina, Canada, Ecuador, French Guiana, and the United States of America (2); the cases reported in French Guiana had a history of travel to Brazil.



How many people in Columbus got measles?

Since the start of the November 2022 outbreak, 85 people — all children — got measles, according to Columbus Public Health. Of those, 35 were hospitalized and none died. While four were partially vaccinated, with one of two doses 80 were unvaccinated One patient's vaccination status was unknown.

Of those 85 people, nearly a third (25) were younger than 1 year old, nearly half (36) were 1-2 years old, nearly a quarter (19) were 3-5 years old and five were 6-17 years old, according to the agency.

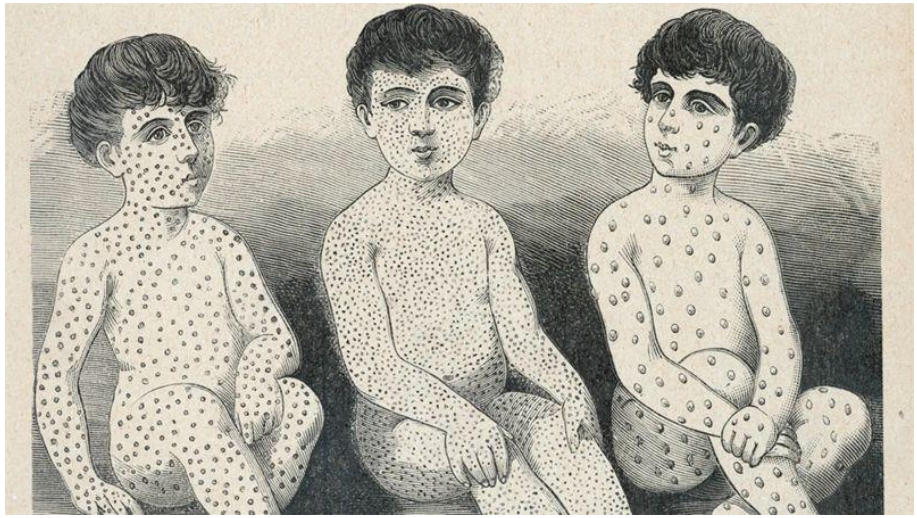
CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Casos de sarampión en el 2019

- Entre el 1.º de enero y el 31 de diciembre del 2019, se confirmaron 1274* casos individuales de sarampión en 31 estados.
- Esta es la mayor cantidad de casos reportados en los Estados Unidos desde 1992. La mayoría de los casos fueron entre personas que no estaban vacunadas contra el sarampión. El sarampión tiene más probabilidad de propagarse y causar brotes en las comunidades de los Estados Unidos donde hay grupos de personas que no están vacunadas.

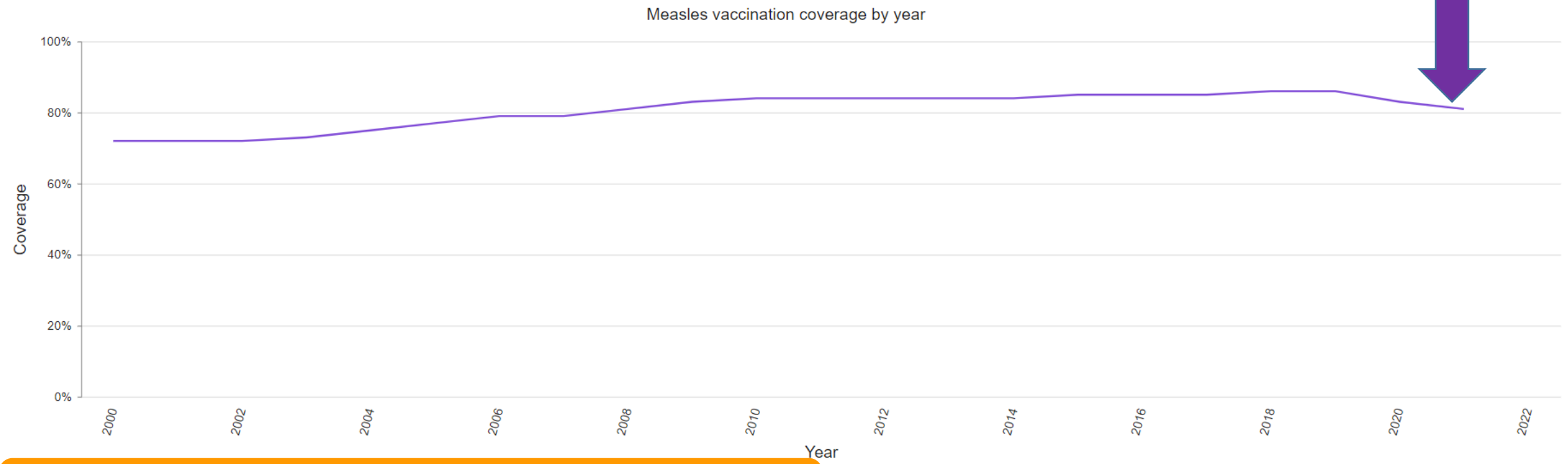
¿Quién tiene riesgo de desarrollar un sarampión?

- **Las personas no vacunadas**
  - Bajas coberturas de vacunación
  - Edad
  - Enfermedades de base



Measles vaccination coverage

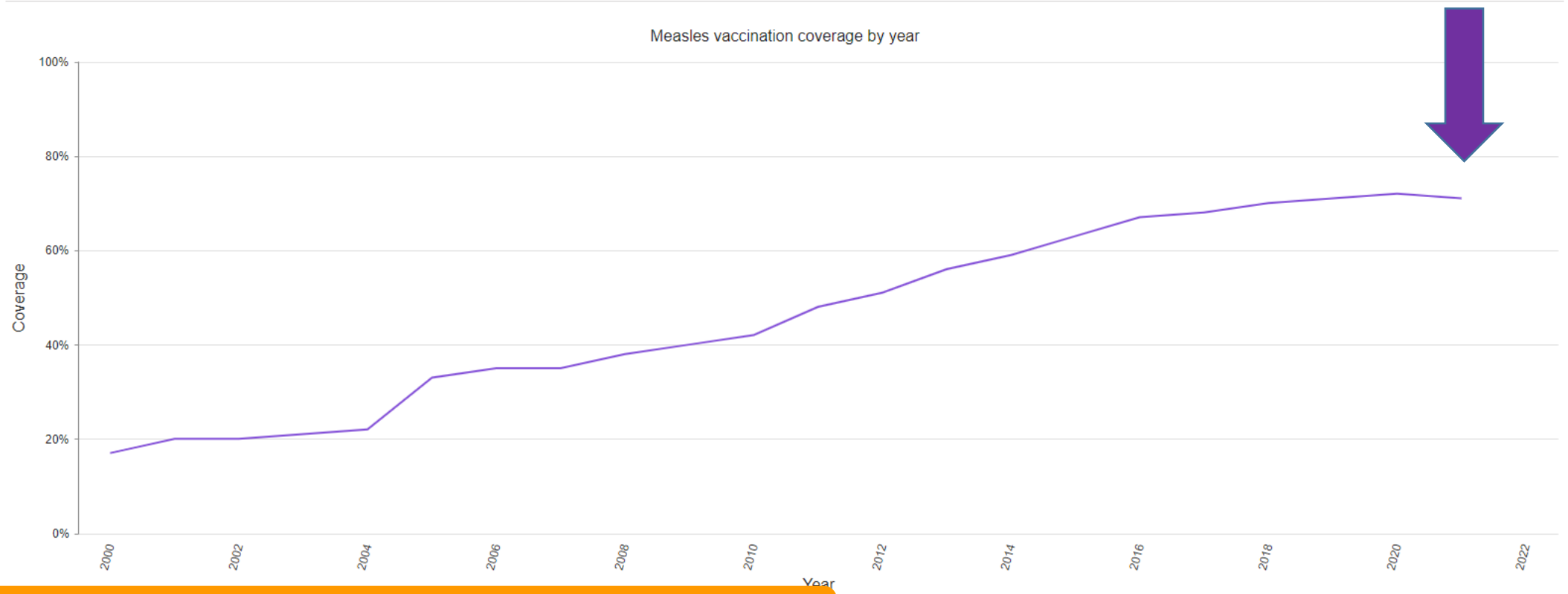
81%



Source: WHO Immunization Data portal

Measles vaccination coverage

72%



Source: WHO Immunization Data portal

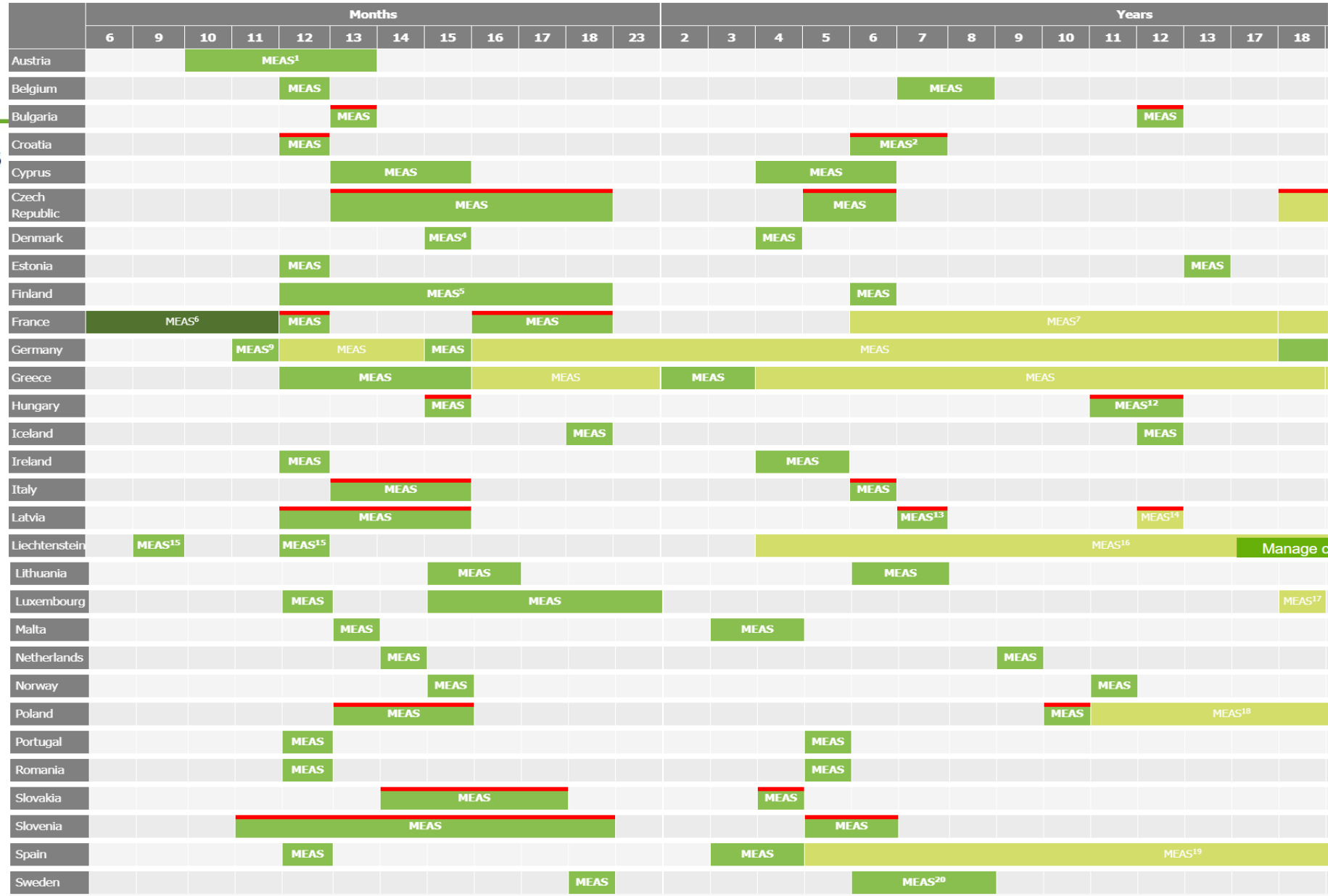
¿Qué está pasando con el sarampión en Europa?

Vaccine Scheduler

Measles: Recommended vaccinations

Back to search | Export to spreadsheet

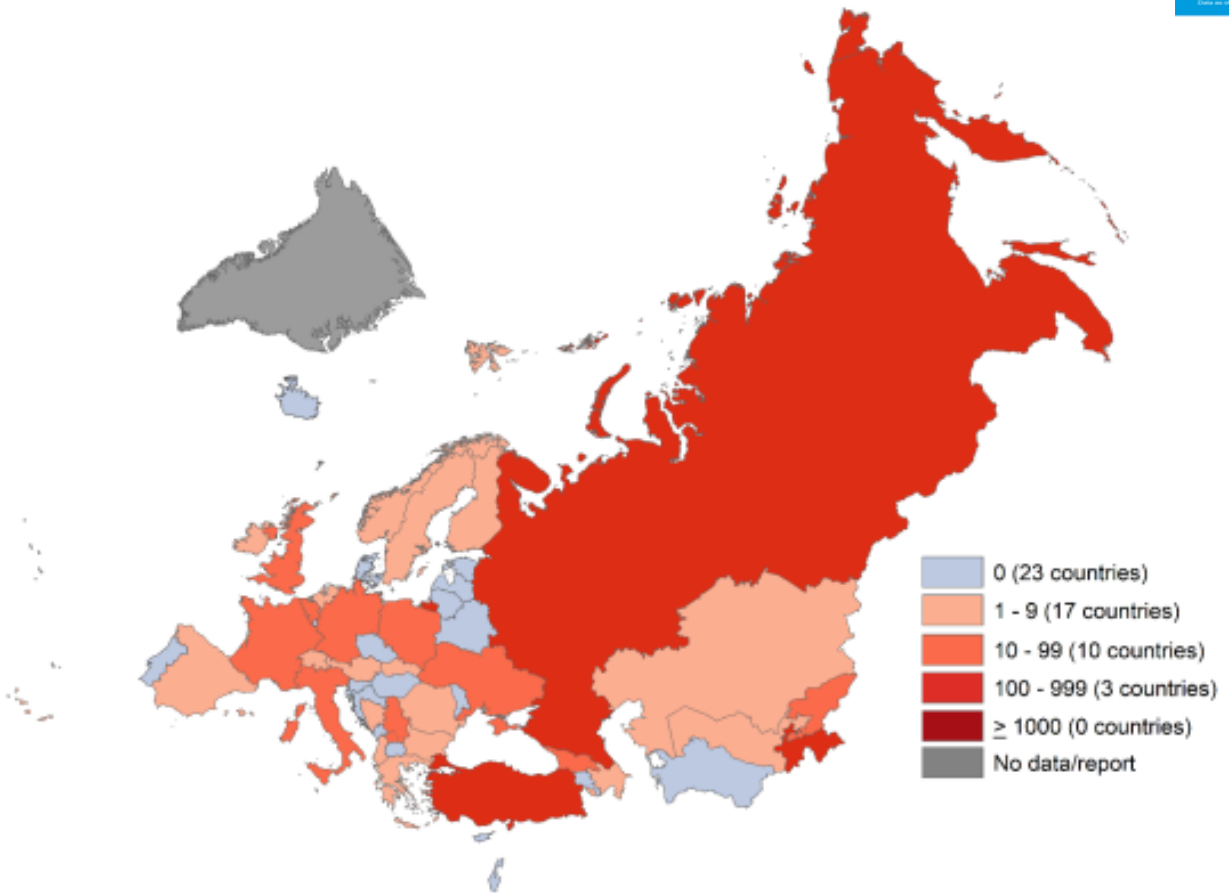
- General recommendation
- Recommendation for specific groups only
- Catch-up (e.g. if previous doses missed)
- Vaccination not funded by the National Health system
- Mandatory vaccination



World Health Organization
European Region

Measles cases—WHO European Region, February 2022–January 2023

Vaccine-preventable Diseases and Immunization
Division of Country Health Programmes
Data as of 02 March 2023



Top 10 countries	
Country	**Cases**
Tajikistan	513
Türkiye	286
Russian Federation	233
United Kingdom	56
Poland	25
Kyrgyzstan	24
Serbia	24
France	22
Italy	18
Belgium	17

30 (57%) countries reported measles cases in the rolling 12-months.

Data source: Monthly aggregated and case-based data reported by Member States to WHO/Europe directly or via ECDC/TESSy data as of 02 March 2023

WEEKLY BULLETIN

Communicable Disease Threats Report

Week 10, 5–11 March 2023

Measles - Multi-country (World) - Monitoring European outbreaks

- Measles activity continues to be low in the EU/EEA, but outbreaks have started to occur, e.g. in Austria and Slovakia. In January 2023 (data access 7 March 2023), a total of nine confirmed cases of measles were reported to TESSy by six EU/EEA countries.

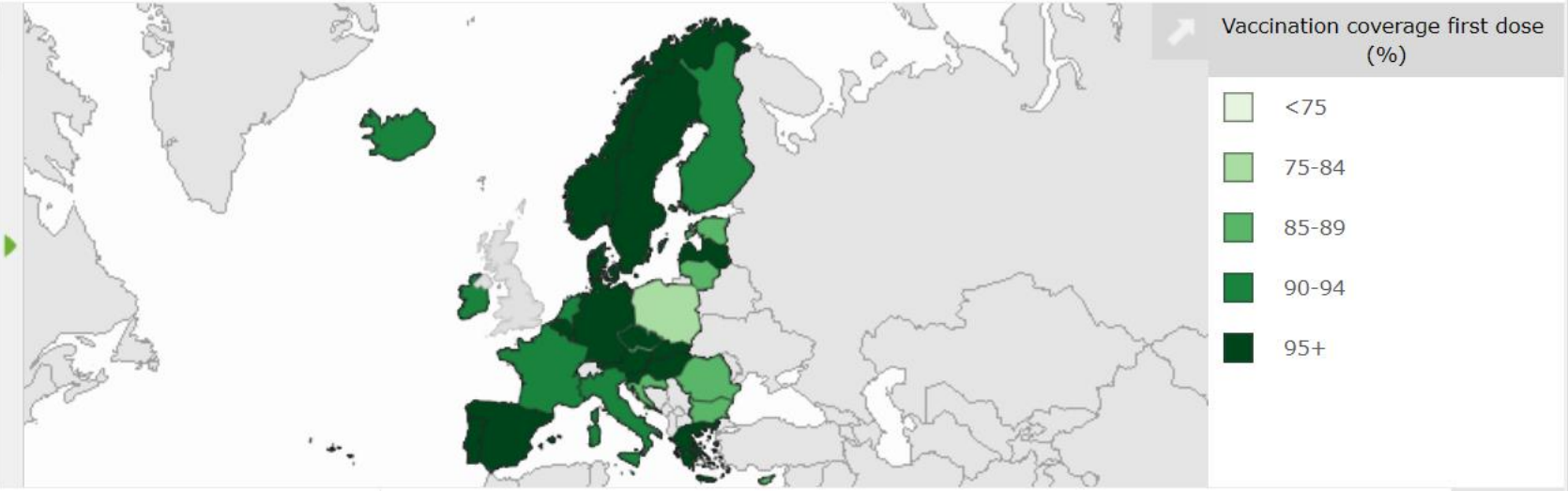
  As of 7 March 2023, complementary epidemic intelligence surveillance of official public and media sources has detected two measles outbreaks in the EU/EEA (Austria and Slovakia). Six EU/EEA countries have reported 44 new suspected and/or confirmed cases of measles in the past month: Austria (34), Germany (2), Ireland (4), Italy (3), and Slovakia (1). Other countries did not report new cases of measles or did not provide updates for previous periods.

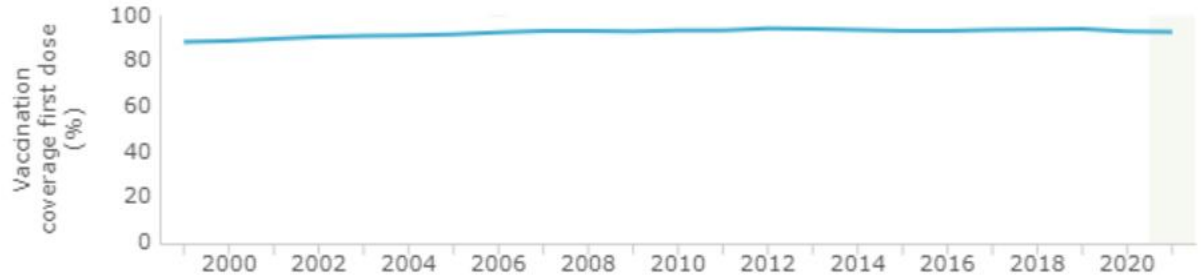
https://www.ecdc.europa.eu/sites/default/files/documents/Communicable-Disease-Threats-Report-10-Mar-2023.pdf

Surveillance Atlas of Infectious Diseases

Measles | Vaccination coverage | Vaccination coverage first dose | 2021

Region	Vaccination coverage first dose (%)
EU/EEA	92.9
Austria	95.0
Belgium	96.0
Bulgaria	89.0
Croatia	89.0
Cyprus	86.0
Czechia	97.0
Denmark	95.0
Estonia	89.0





Not Available

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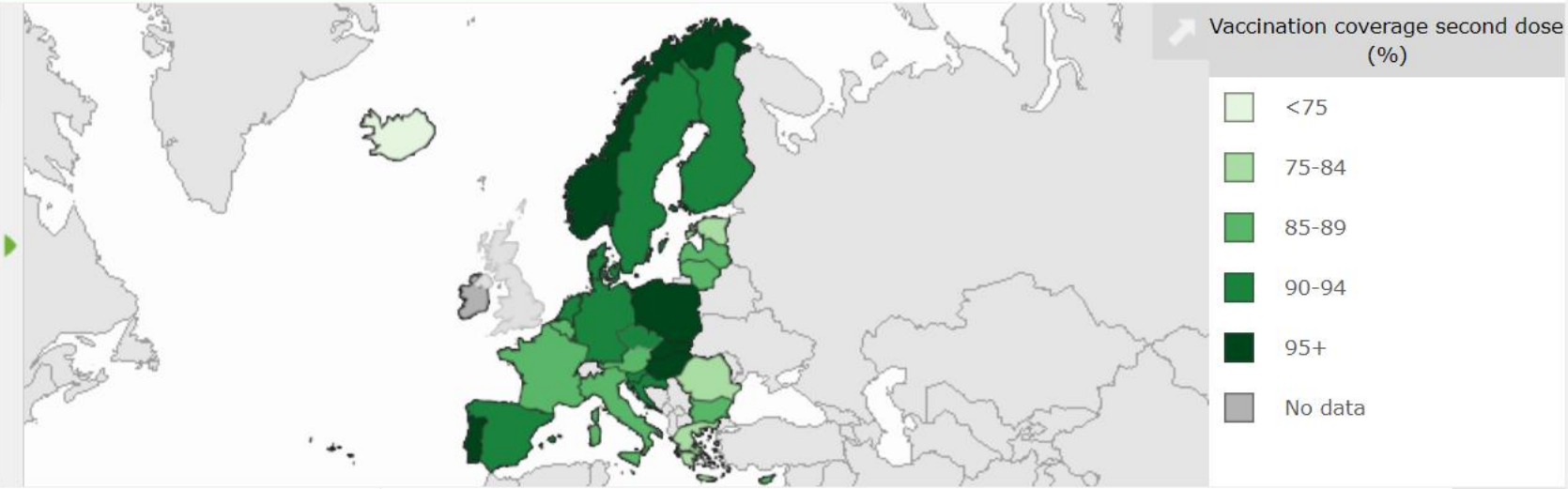
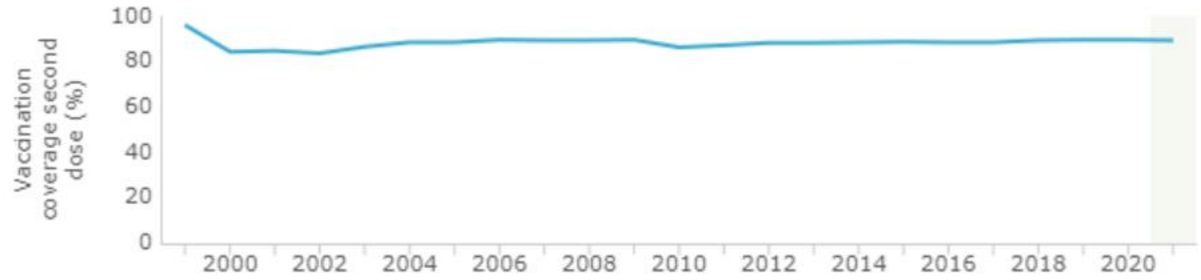
Surveillance Atlas of Infectious Diseases

Measles | Vaccination coverage | Vaccination coverage second dose | 2021

Region	Vaccination coverage second dose (%)
EU/EEA	89.4
Austria	88.0
Belgium	85.0
Bulgaria	86.0
Croatia	90.0
Cyprus	88.0
Czechia	90.0
Denmark	94.0
Estonia	84.0





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AEP Asociación Española de Pediatría

CAV Comité Asesor de Vacunas

LA VACUNACIÓN DEL SARAMPIÓN A NIVEL MUNDIAL A LA BAJA: SEÑAL DE PELIGRO

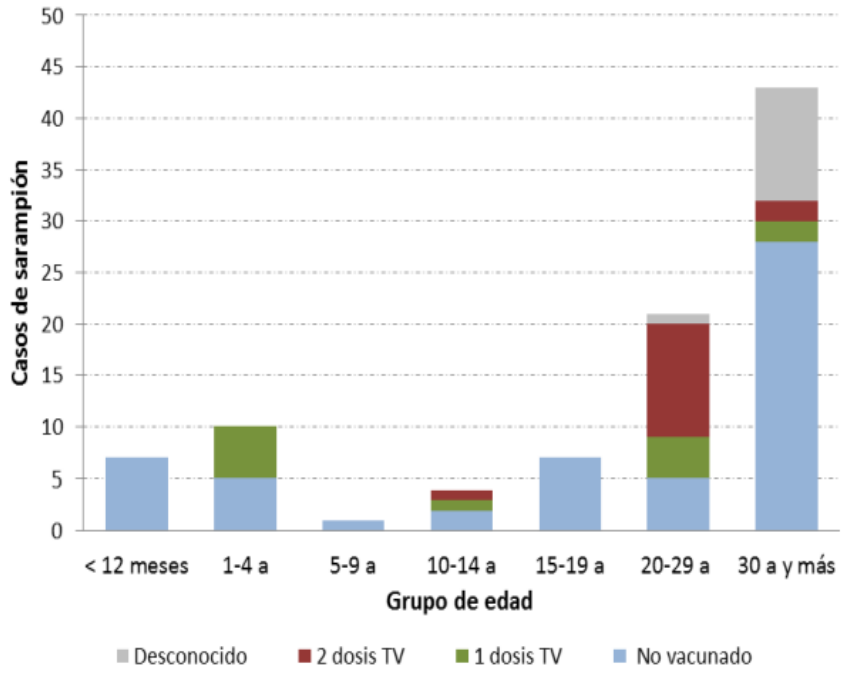
28 noviembre 2022

LAS COBERTURAS VACUNALES FRENTE AL SARAMPIÓN EN ESPAÑA

En el pasado mes de septiembre se publicó en esta web un resumen de los datos publicados por el Ministerio de Sanidad sobre las **coberturas vacunales de 2021**. De los datos mostrados, destacaban:

- La **cobertura de la primera dosis a nivel nacional es del 95,4 %**, si bien en un 23,5 % de la población española (Baleares, Cataluña y País Vasco) se situaba entre el 84 y el 91 %, muy lejos del objetivo.
- La **cobertura de la segunda dosis a nivel nacional es del 91,2 %**, muy por debajo del objetivo del 95 %. Solo en cuatro comunidades (Andalucía, Cantabria, Castilla y León y Murcia) cumplen con el objetivo, mientras que otras dos (Navarra y Com. Valenciana) se sitúan muy cerca.

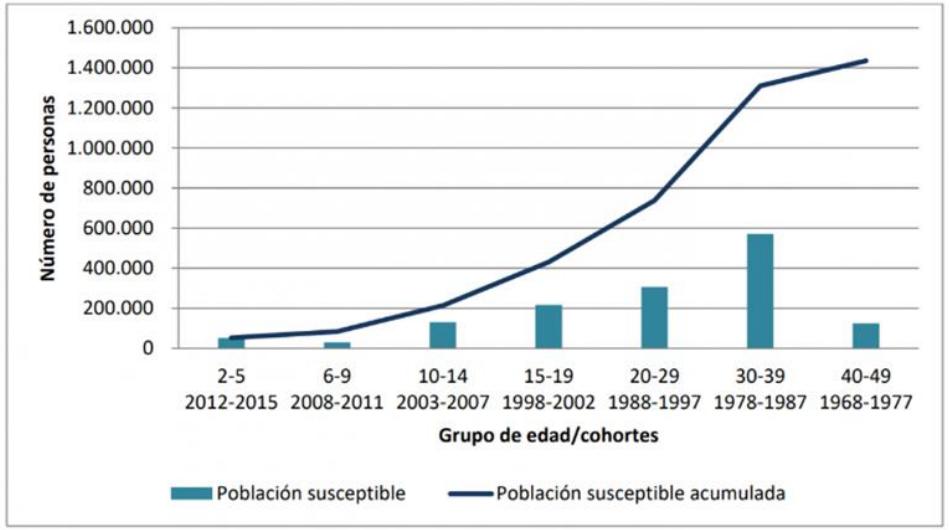
Figura 2. Casos de sarampión por grupo de edad y estado de vacunación. España, 2020



En 2020 los casos se produjeron fundamentalmente en adultos sin vacunar o vacunados con pauta incompleta (Figura 2). En los casos que tenía administradas correctamente las dos dosis de vacuna Triple Vírica (TV) habían transcurrido entre 21-36 años desde la última dosis, aunque hubo un caso en un adolescente de 13 años que había recibido la segunda dosis 10 años antes.

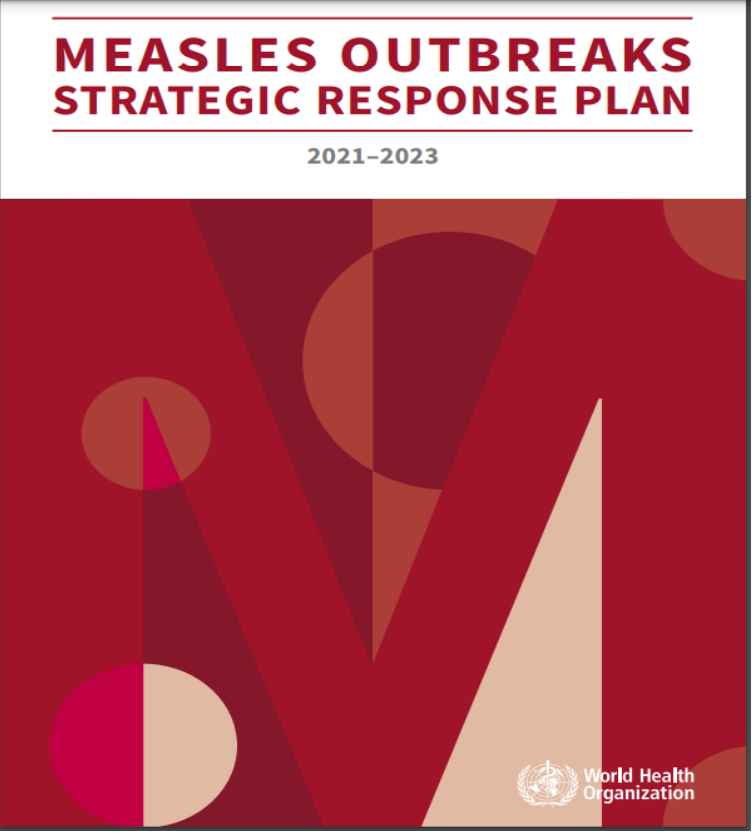
Se notificaron 7 casos en trabajadores del entorno sanitario (3 de ellos vacunados con 2 dosis de TV). Hubo dos casos entre detractores vacunales (mayores de 20 años).

Gráfica 3.3.6. *Población susceptible a sarampión por grupo de edad / cohortes de nacimiento y población susceptible acumulada.*

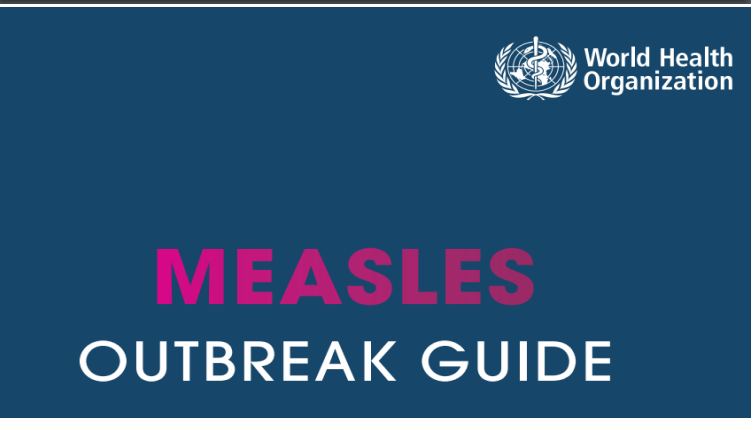


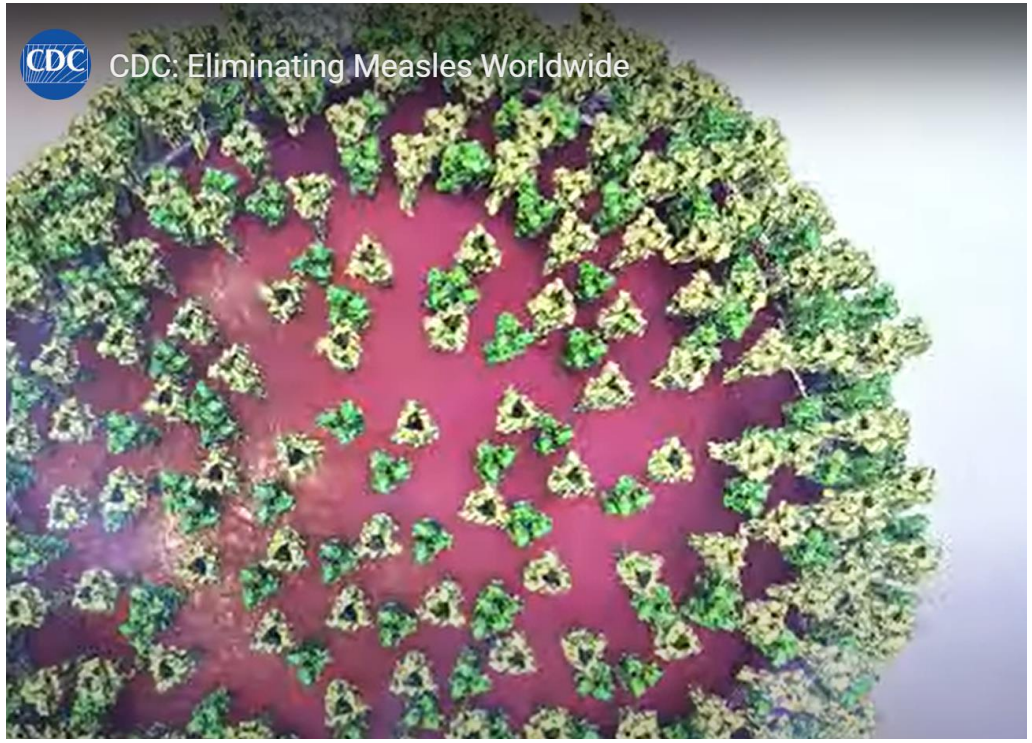
- Las personas nacidas antes de 1977 están protegidas frente al sarampión (98,4 %; IC 95 %: 97,5-99,3 %), probablemente por haber padecido la enfermedad natural.
- Entre los nacidos después se observa una caída del nivel de anticuerpos con el tiempo, consecuencia de las elevadas coberturas vacunales mantenidas de forma estable en el tiempo.
- Debe hacerse notar que en este estudio solo se explora la inmunidad proporcionada por los anticuerpos neutralizantes, y no la inmunidad celular que, con seguridad, también estimula la vacuna atenuada del sarampión.

Estudio Nacional de Seroprevalencia 2021


MEASLES OUTBREAKS
STRATEGIC RESPONSE PLAN
2021–2023
World Health Organization


Measles moves fast, we must move faster
Measles & Rubella Strategic Framework 2021-2030
About Measles & Rubella


World Health Organization
MEASLES
OUTBREAK GUIDE


CDC
CDC: Eliminating Measles Worldwide


World Health Organization
Health Topics
Countries
Newsroom
Global launch of the Immunization Agenda 2030
IA2030: Find out more →


XIV JORNADAS DE
VACUNAS
AEP
OURENSE, 14 Y 15 DE ABRIL DE 2023

¿Quién tiene riesgo de desarrollar un sarampión?

- **Las personas no vacunadas**
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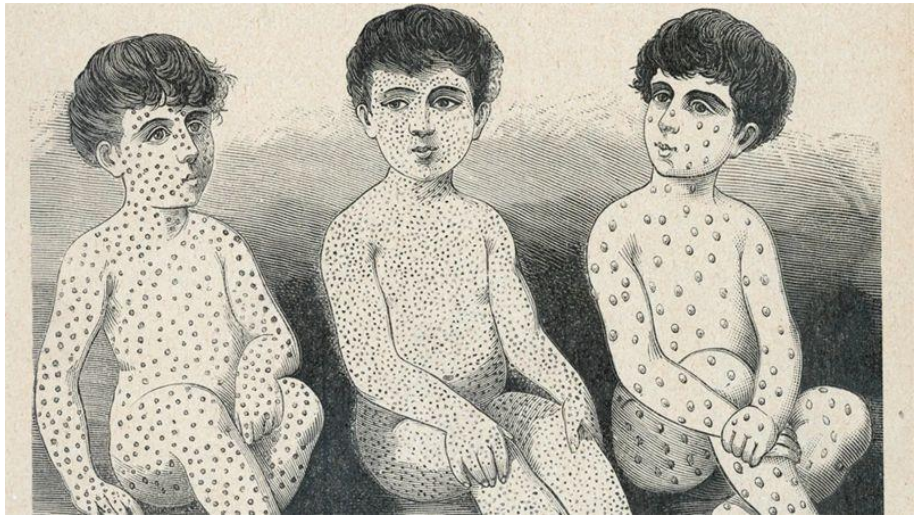
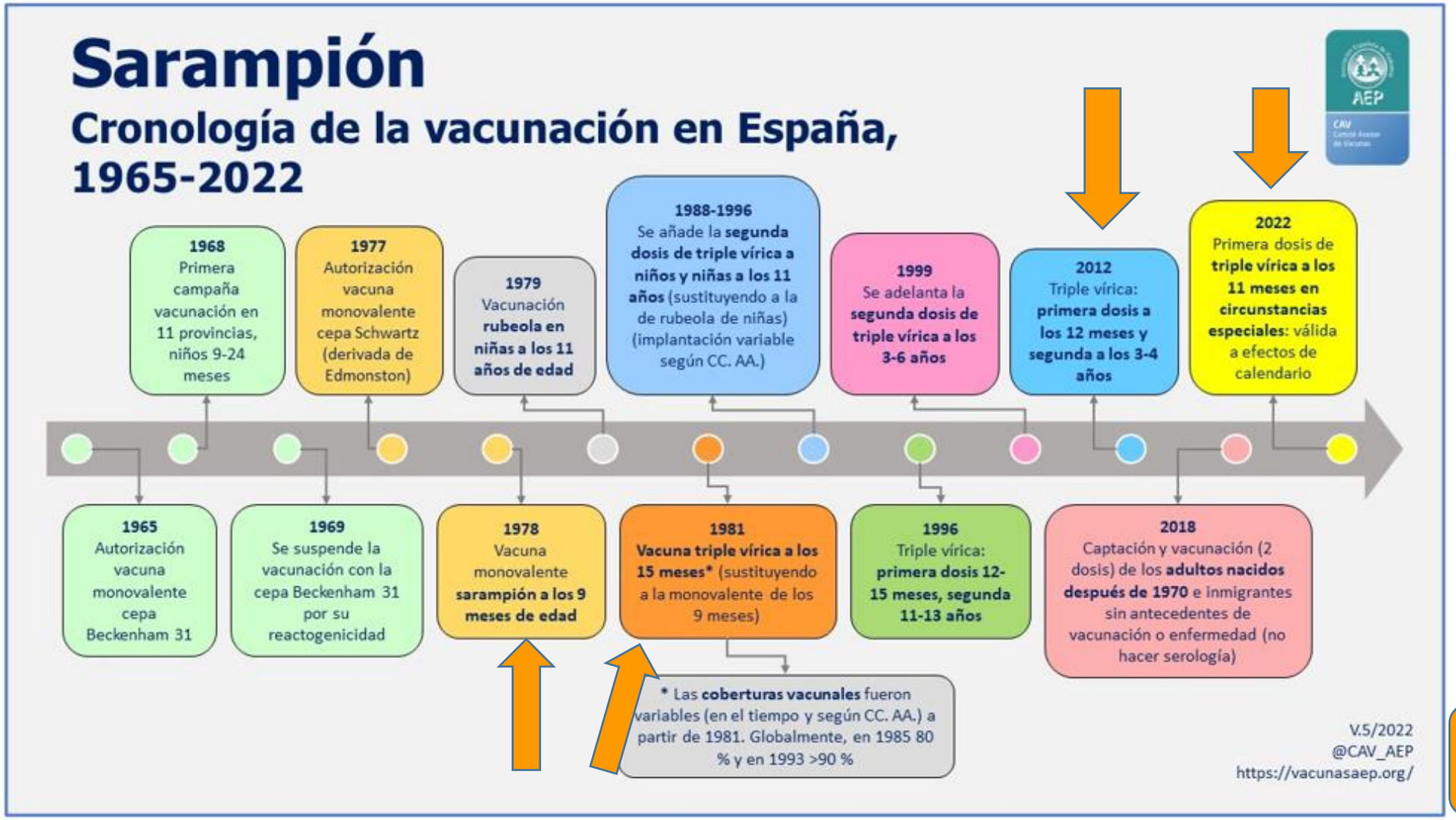




A. Hdez Merino

¿Cuál es la edad óptima para la primera dosis de triple vírica?

Mª José Cilleruelo Ortega

Hospital Universitario Puerta de Hierro Majadahonda

- **Depende de dos factores:**
  - Capacidad de respuesta inmune a los antígenos vacunales
  - Niveles y duración de los anticuerpos maternos

Effect of measles vaccination in infants younger than 9 months on the immune response to subsequent measles vaccine doses: a systematic review and meta-analysis

Laura M Nic Lochlainn, Brechje de Gier, Nicoline van der Maas, Rob van Binnendijk, Peter M Strebel, Tracey Goodman, Hester E de Melker, William J Moss, Susan J M Hahné

Lancet Infect Dis 2019; 19: 1246–54

Summary

Background Vaccinating infants with a first dose of measles-containing vaccine (MCV1) before 9 months of age in high-risk settings has the potential to reduce measles-related morbidity and mortality. However, there is concern that early vaccination might blunt the immune response to subsequent measles vaccine doses. We systematically reviewed the available evidence on the effect of MCV1 administration to infants younger than 9 months on their immune responses to subsequent MCV doses.

Interpretation Our findings suggest that administering MCV1 to infants younger than 9 months followed by additional MCV doses results in high seropositivity, vaccine effectiveness, and T-cell responses, which are independent of the age at MCV1, supporting the vaccination of very young infants in high-risk settings. However, we also found some evidence that MCV1 administered to infants younger than 9 months resulted in lower antibody titres after one or two subsequent doses of MCV than when measles vaccination is started at age 9 months or older. The clinical and public-health relevance of this immunity blunting effect are uncertain.

Vaccine 39 (2021) 2929–2937

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Review

Effect of early measles vaccination on long-term protection: A systematic review

Janine Xu [a,1], Paméla Doyon-Plourde [b,2], Matthew Tunis [c,3], Caroline Quach [d,*]

A B S T R A C T

Background: In North America, the first dose of a measles-containing vaccine (MCV1) is administered at ≥12 months of age. However, MCV1 may be given to infants <12 months living in highly endemic areas or traveling to these areas. Although an early dose of MCV1 leads to immediate protection, it remains unclear how this impacts long-term immunity.

Methods: This systematic review and meta-analysis evaluates the impact of MCV1 given at <12 months vs. ≥12 months of age on long-term immunogenicity and vaccine effectiveness, with long-term defined as at least one-year post-vaccination. PubMed, EMBASE, Global Health, Web of Science and Scopus were searched on October 31st, 2019. Studies were included if they included a cohort of infants vaccinated <12 months of age and evaluated long-term immunogenicity, vaccine efficacy, or effectiveness.

Results: A total of 51 texts were identified: 23 reported outcomes related to vaccine effectiveness and 30 to immunogenicity. Infants vaccinated with MCV1 < 12 months of age showed an overall higher risk of measles compared to ≥12 months of age (RR = 3.16, 95% CI: 2.00, 5.01; OR = 2.46, 95% CI: 1.40, 4.32). Risk of measles decreased with increasing age at first vaccination, with those vaccinated with one dose ≥15 months at a lesser risk compared to 12–14 months or <12 months. Measles seroconversion and seropositivity was not affected by age at first vaccination, but antibody levels were significantly lower in the MCV1 < 12-month group (MD = −0.40, 95% CI: −0.71, −0.09).

Conclusion: Long-term measles seroconversion and seropositivity did not appear to be affected by age at MCV1, while vaccine effectiveness decreased with younger age. There was not enough evidence to look at the effect of age at MCV1 on immune blunting.

Carazo *et al. BMC Infectious Diseases* (2020) 20:251
https://doi.org/10.1186/s12879-020-4870

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Effect of age at vaccination on the measles vaccine effectiveness and immunogenicity: systematic review and meta-analysis

Sara Carazo[1], Marie-Noëlle Billard[2], Amélie Boutin[2] and Gaston De Serres[1,2,3*]

Abstract

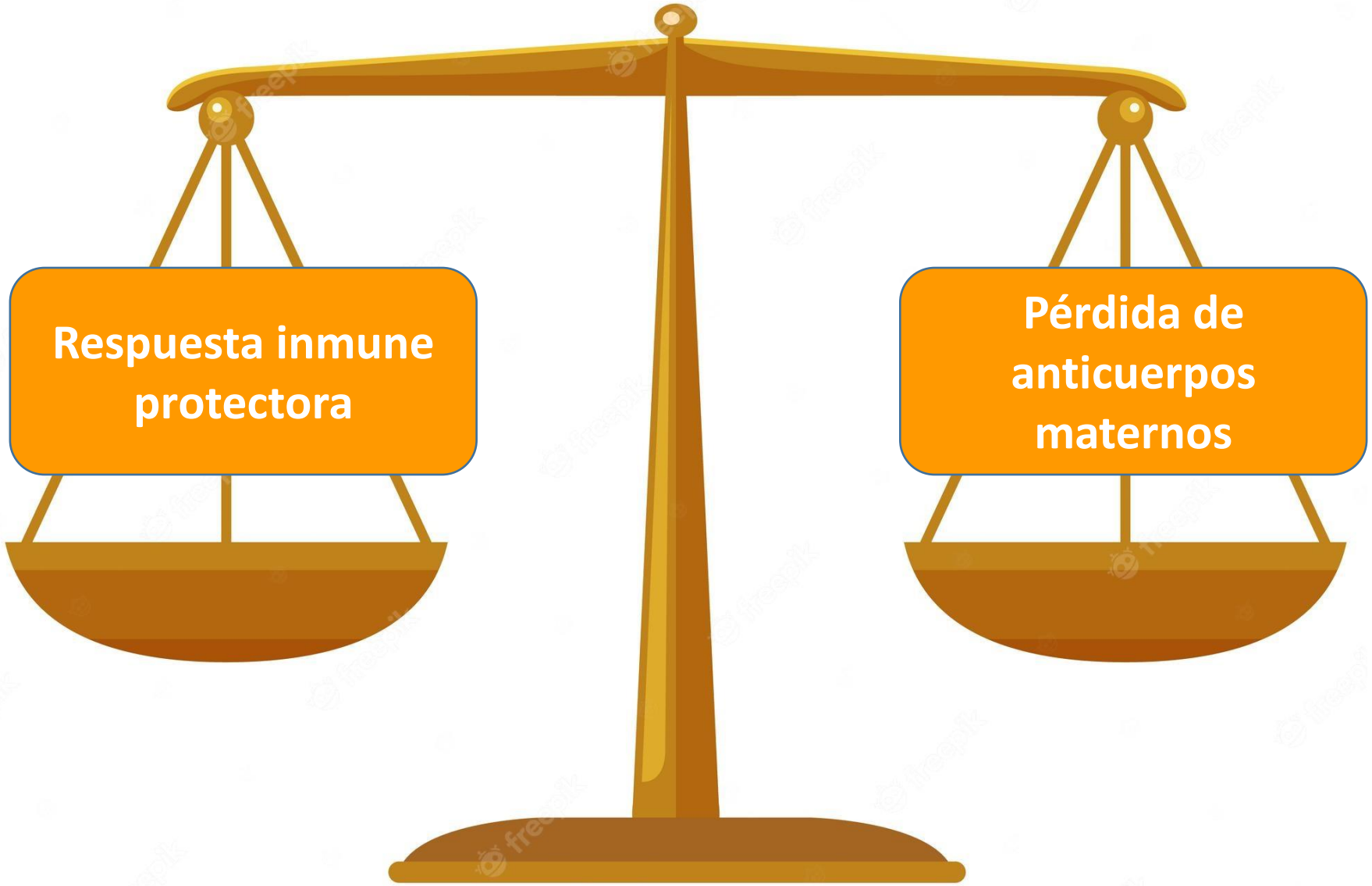
Background: The objectives of this review were to evaluate the effect of age at administration of the first dose of a measles-containing vaccine (MCV1) on protection against measles and on antibody response after one- and two-dose measles vaccinations.

Methods: We conducted a systematic review of the PubMed/MEDLINE, Embase, Web of Science and Cochrane databases (1964–2017) to identify observational studies estimating vaccine effectiveness and/or measles attack rates by age at first vaccination as well as experimental studies comparing seroconversion by age at first vaccination. Random effect models were used to pool measles risk ratios (RR), measles odds ratios (OR) and seroconversion RR of MCV1 administered at < 9, 9–11 or ≥ 15 months compared with 12 or 12–14 months of age.

Results: We included 41 and 67 studies in the measles protection and immunogenicity analyses. Older age at MCV1, from 6 to ≥15 months, improved antibody response and measles protection among one-dose recipients. Pooled measles RR ranged from 3.56 (95%CI: 1.28, 9.88) for MCV1 at < 9 months to 0.48 (95%CI: 0.36, 0.63) for MCV1 at ≥15 months, both compared to 12–14 months. Pooled seroconversion RR ranged from 0.93 (95%CI: 0.90, 0.96) for MCV1 at 9–11 months to 1.03 (95%CI: 1.00, 1.06) for MCV1 at ≥15 months, both compared to 12 months. After a second dose, serological studies reported high seropositivity regardless of age at administration of MCV1 while epidemiological data based on few studies suggested lower protection with earlier age at MCV1.

Conclusions: Earlier age at MCV1 decreases measles protection and immunogenicity after one dose and might still have an impact on vaccine failures after two doses of measles vaccine. While two-dose vaccination coverage is most critical to interrupt measles transmission, older age at first vaccination may be necessary to keep the high level of population immunity needed to maintain it.

Keywords: Measles vaccine, Age, Immunogenicity, Effectiveness


Respuesta inmune protectora
Pérdida de anticuerpos maternos

BMJ

RESEARCH

Early waning of maternal measles antibodies in era of measles elimination: longitudinal study

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Cite this as: *BMJ* 2010;340:c1626
doi:10.1136/bmj.c1626

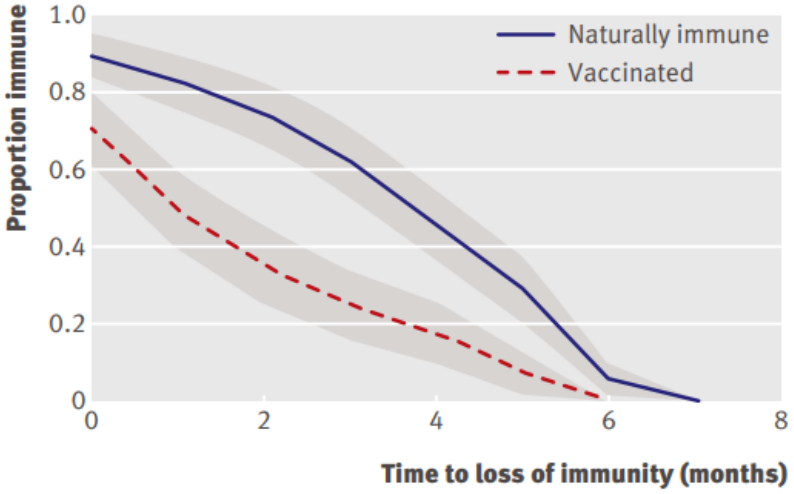

Fig 2 | Proportion of infants of vaccinated women and naturally immune women still immune as a function of time to loss of immunity. Shaded area is 95% confidence interval

ABSTRACT

Objective To investigate the duration of the presence of maternal antibodies to measles in infants.

Design Prospective study (May 2006 to November 2008).

Setting Five hospitals in the Province of Antwerp, Belgium.

Participants Of 221 pregnant women recruited, 207 healthy woman-infant pairs were included—divided into a vaccinated group (n=87) and naturally immune group (n=120), according to vaccination documents and history.

Main outcome measure Measles IgG antibodies measured by enzyme linked immunosorbent assay (ELISA) at seven time points (week 36 of pregnancy, birth (cord), and 1, 6, 9, and 12 months); decay of maternal antibody in infants modelled with linear mixed models.

Results Vaccinated women had significantly fewer IgG antibodies (geometric mean titre 779 (95% confidence interval 581 to 1045) mIU/ml) than did naturally immune women (2687 (2126 to 3373) mIU/ml) (P<0.001).

At 6 months of age, more than 99% of infants of vaccinated women and 95% of infants of naturally immune women had lost maternal antibodies according to the model.

Waning of Maternal Antibodies Against Measle Mumps, Rubella, and Varicella in Communities With Contrasting Vaccination Coverage

Sandra Waaijenborg,[1,3] Susan J. M. Hahné,[1] Liesbeth Mollema,[1] Gaby P. Smits,[2] Guy A. M. Berbers,[2] Fiona R. M. van der Klis,[2] Hester E. de Melker,[1] and Jacco Wallinga[1]

Conclusion. Children of mothers vaccinated against measles and, possibly, rubella have lower concentrations of maternal antibodies and lose protection by maternal antibodies at an earlier age than children of mothers in communities that oppose vaccination. This increases the risk of disease transmission in highly vaccinated populations.

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Available online at www.sciencedirect.com

ScienceDirect

Vaccine 25 (2007) 6296–6304

Vaccine

www.elsevier.com/locate/vaccine

Review

Passive transmission and persistence of naturally acquired or vaccine-induced maternal antibodies against measles in newborns

E. Leuridan *, P. Van Damme

Zhao *et al. Virology Journal* 2010, **7**:87
http://www.virologyj.com/content/7/1/87

VIROLOGY JOURNAL

RESEARCH Open Access

Low titers of measles antibody in mothers whose infants suffered from measles before eligible age for measles vaccination

Vaccine 30 (2012) 752–757

Contents lists available at SciVerse ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

ELSEVIER

› Pediatrics. 1995 Sep;96(3 Pt 1):447-50.

Early loss of passive measles antibody in infants of mothers with vaccine-induced immunity

Y A Maldonado [1], E C Lawrence, R DeHovitz, H Hartzell, P Albrecht

EDITORIAL COMMENTARY

Loss of Passively Acquired Maternal Antibodies in Highly Vaccinated Populations: An Emerging Need to Define the Ontogeny of Infant Immune Responses

Hayley A. Gans and Yvonne A. Maldonado

Duration of maternally derived antibody against measles: A seroepidemiological study of infants aged under 8 months in Qinghai, China

Xinwei Zhang[a,*], Yoshihisa Shirayama[a], Yongji Zhang[b], Wensheng Ba[b], Nayu Ikeda[a], Rintaro Mori[a], Kenji Shibuya[a]

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Review

Waning of measles maternal antibody in infants in measles elimination settings – A systematic literature review

Fiona M. Guerra [a], Natasha S. Crowcroft [a,b,c], Lindsay Friedman [a], Shelley L. Deeks [a,b], Scott A. Halperin [d,e,f,g], Alberto Severini [h,i], Todd F. Hatchette [d,e,f,g], Shelly Bolotin [a,b,*], on behalf of the Immunity of Canadians and Risk of Epidemics (iCARE) Network

Vaccine.2018;36:148-55

Study	Setting		Population				Test method			Measures of measles immunity		
	Study year	Country	N	Gestational age	Infant age (number)	Sample	Antibody type	Test	Cut off‡	Titre	Detectable antibody	Protective antibody
[33]	1997–1999*	USA	113	≥36 weeks	6 months (n = 42)	Sera	Neutralizing	PRNT	<1:4 = negative (measuring detectable antibody)*	13 (CI: 7–26)	26/42 (61.9%)	–
					9 months (n = 35)					4 (CI: 2–8)	15/35 (42.9%)	–
					12 months (n = 36)					1 (CI: 1–1)	0/36 (0%)	–
[34]	1998–2000*	USA	134	≥36 weeks	6 months (n = 73)	Sera	Neutralizing	PRNT	<1:4 = negative (measuring detectable antibody)*, ≥120 mIU/mL = protective	–	47/73 (64.4%)	–
					9 months (n = 61)					–	24/61 (39.3%)	–
					12 months (n = 53)					–	1/53 (1.9%)	
[32]	1994–2002	USA	133	≥36 weeks	6 months (n = 29)	Sera	Neutralizing	PRNT	<1:4 = negative (measuring detectable antibody), >120 mIU/mL = protective	47 mIU/ml (CI: 31–71)	15/29 (51.7%)	–
					9 months (n = 21)					27 mIU/ml (CI: 16–47)	4/21 (19.0%)	–
					12 months (n = 83)					0	0/83 (0%)	–
[30]	2002–2003	Mexico	99	≥36 weeks	9 months ± 4 weeks	Sera	Neutralizing	PRNT	≥120 mIU/mL = protective	43 mIU/ml†	12/99 (12.1%)	–
										1 mIU/ml (CI: 22–74)††		
										45 mIU/ml (CI: 19–103)†††		
[35]	2000–2001	USA	27	Full term	Birth (n = 27)	Cord blood	IgG	ELISA	≥1.09 ODR = protective	2.10 ODR (±1.57 SD)	–	80%*
					3–7 months* (n = 13)	Sera				0.36 ODR* (CI: 0.145–0.577)*	–	0%*
[29]	2008–2009	Mexico	113	≥36 weeks	9 months ± 4 weeks	Sera	Neutralizing	PRNT	≥120 mIU/mL = protective	4 mIU/ml†	5/113 (4.4%)	–
										4 mIU/ml (CI: 3–4)††		
										4 mIU/ml (CI: 3–6)†††		
[37]	2010–2011*	Brazil	32	>37 weeks	Birth (n = 32)	Cord blood	IgG	ELISA	≥120 mIU/mL = protective	Median titer 1.05 IU/ml (IQR 0.51–1.92)	32/32 (100%)	100%
[36]	2009–2010	South Korea	295	≥37 weeks	<1 month (n = 18)*	Sera	IgG	ELISA	≥150 mIU/mL = positive	976 mIU/mL	–	94.4%

Conclusion: Although limited, these data suggest that in settings that have sustained measles elimination, some infants are susceptible to measles well before the age of routine measles immunization. Setting-specific seroprevalence and vaccine effectiveness studies are required to evaluate this in different jurisdictions.

Vaccine 37 (2019) 4164–4171

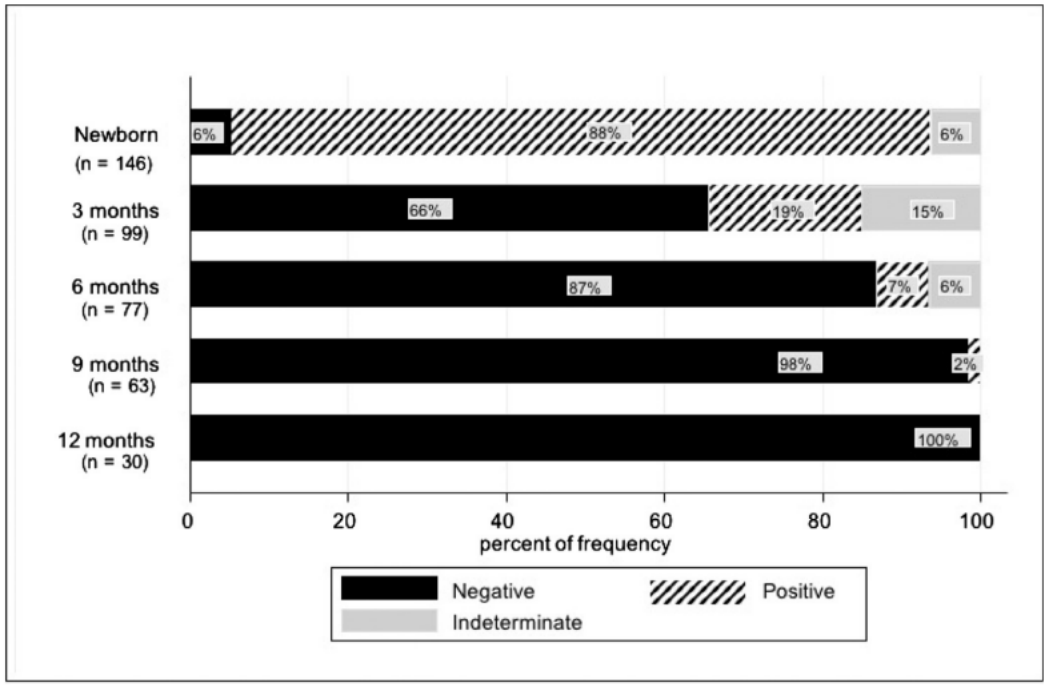
Contents lists available at ScienceDirect

Vaccine

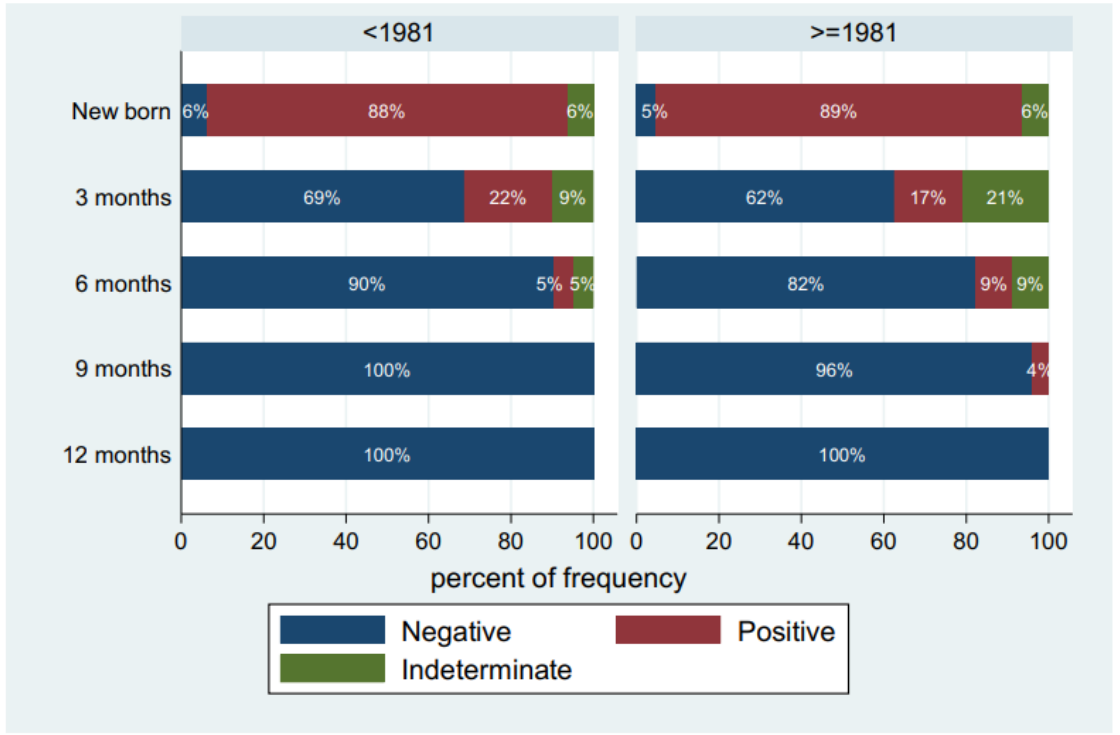
journal homepage: www.elsevier.com/locate/vaccine

Duration of immunity to measles, rubella and mumps during the first year of life

María José Cilleruelo [a], Aurora Fernández-García [b,d], Serena Villaverde [a], Juan Echevarría [b,d], Miguel Ángel Marín [a], Juan Carlos Sanz [c,d], Agustín López [a], Ana Royuela [a,d], Belén Ruiz Antoran [a], Fernando de Ory [b,d,*]



a. Evolution of time to negative antibody level against Measles



a. Time to negative antibody level of antibodies against measles by time of maternal birth (newborn n = 146, 3 months n = 99, 6 months n = 77, 9 months n = 63, 12 months n = 30)

Conclusión

- Los hijos de madres con antecedente de infección natural tuvieron al nacimiento títulos de IgG superiores
- Ningún niño tuvo títulos protectores frente a sarampión a los 9 meses de edad

En enero de 2022 el CAV-AEP remitió una propuesta a la Ponencia de Programas y Registros de Vacunaciones (la Ponencia en adelante) y a la CSP, para modificar el criterio de considerar no válida a efectos del cumplimiento del calendario vacunal la administración de la vacuna triple vírica en lactantes de entre 11 y 12 meses de edad.

En abril de 2022 la Ponencia y la CSP han comunicado la aprobación de dicha propuesta. Las razones que sustentan la propuesta aprobada y otros detalles de la misma se explican en el documento del CAV-AEP publicado en esta web y del cual se hace una reseña en esta nota.

RECOMENDACIÓN DEL CAV-AEP (4 DE MAYO DE 2022)

Teniendo en cuenta los argumentos expuestos y la aprobación de la Ponencia y la CSP del CISNS, puede llevarse a cabo un cambio en la recomendación actual, en el siguiente sentido.

Cuando se ha administrado una dosis de vacuna triple vírica entre los 11 y los 12 meses de edad, en circunstancias especiales (bien de forma inadvertida -por error-, por proceder de un país donde la primera dosis se administra a los 11 meses o bien por la proximidad de un viaje a un país con circulación activa del sarampión), puede contabilizarse dicha dosis como válida a los efectos del calendario vacunal estándar.

- La vacuna del sarampión (triple vírica) puede administrarse en situaciones extraordinarias (por ej. viajes a países endémicos o con elevado riesgo de exposición), atendiendo a las recomendaciones de los servicios de salud pública, a partir de los 6 meses de edad. Cuando se administra entre los 6 y los 10 meses (hasta el día anterior a cumplir los 11 meses), no debe contabilizarse a los efectos del calendario vacunal, y se deben administrar dos dosis siguiendo la pauta habitual a partir de los 12 meses.

- Cuando se administra la vacuna triple vírica una vez cumplidos los 11 meses de edad y antes de cumplir los 12 meses, debe considerarse válida y contabilizarse dicha dosis a los efectos del calendario vacunal, siguiendo después con la segunda dosis a los 3-4 años de edad.

Debe recordarse, sin embargo, que se mantiene la recomendación de que la primera dosis de vacuna triple vírica se administre de forma rutinaria tan pronto como sea posible una vez cumplidos los 12 meses de edad [3,5].

World Health Organization
Organisation mondiale de la Santé

Weekly epidemiological record
Relevé épidémiologique hebdomadaire

28 APRIL 2017, 92th YEAR / 28 AVRIL 2017, 92e ANNÉE
No 17, 2017, 92, 205–228
http://www.who.int/wer

Contents

Measles vaccines: WHO position paper – April 2017

Note de synthèse de l'OMS sur les vaccins contre la rougeole – avril 2017

(updated: November 2021)

Table 2: Summary of WHO Position Papers - Recommended Routine Immunizations for Children

Antigen		Age of 1st Dose	Doses in Primary Series	Interval Between Doses			Booster Dose	Considerations (see footnotes for details)
				1st to 2nd	2nd to 3rd	3rd to 4th		
Recommendations for all children								
BCG [1]		As soon as possible after birth	1					Birth dose and HIV; Universal vs selective vaccination; Co-administration; Vaccination of older age groups; Pregnancy
Hepatitis B [2]	Option 1	As soon as possible after birth (<24h)	3	4 weeks (min) with DTPCV1	4 weeks (min) with DTPCV2			Premature and low birth weight Co-administration and combination vaccine High risk groups
	Option 2	As soon as possible after birth (<24h)	4	4 weeks (min) with DTPCV1	4 weeks (min) with DTPCV2	4 weeks (min),with DTPCV3		
Polio [3]	bOPV + IPV	bOPV 6 weeks (min) IPV 14 weeks (min)	5 (3 bOPV and 2 IPV)	bOPV 4 weeks (min) with DTPCV2 IPV 4 months (min)	bOPV 4 weeks (min) with DTPCV3			bOPV birth dose Type of vaccine Fractional dose IPV Alternative early IPV schedule Transmission and importation risk
	IPV / bOPV Sequential	8 weeks (IPV 1st)	1-2 IPV 2 bOPV	4-8 weeks	4-8 weeks	4-8 weeks		
	IPV	8 weeks	3	4-8 weeks	4-8 weeks		(see footnote)	IPV booster needed for early schedule (i.e. first dose given <8 weeks)
DTP-containing vaccine [4]		6 weeks (min)	3	4 weeks (min) - 8 weeks	4 weeks (min) - 8 weeks		3 Boosters 12-23 months (DTP-containing vaccine); 4-7 years (Td/DT containing vaccine), see footnotes; and 9-15 yrs (Td)	Delayed/ interrupted schedule Combination vaccine; Maternal immunization
Haemophilus influenzae type b [5]	Option 1	6 weeks (min) 59 months (max)	3	4 weeks (min) with DTPCV2	4 weeks (min) with DTPCV3		(see footnote)	Single dose if >12 months of age Not recommended for children > 5 yrs Delayed/ interrupted schedule Co-administration and combination vaccine
	Option 2		2-3	8 weeks (min) if only 2 doses 4 weeks (min) if 3 doses	4 weeks (min) if 3 doses		At least 6 months (min) after last dose	
Pneumococcal (Conjugate) [6]	Option 1 3p+0	6 weeks (min)	3	4 weeks (min)	4 weeks			Schedule options (3p+0 vs 2p+1) Vaccine options HIV+ and preterm neonate booster Vaccination in older adults
	Option 2 2p+1	6 weeks (min)	2	8 weeks (min)			9-18 months	
Rotavirus [7]		6 weeks (min) with DTP1	2 or 3 depending on product	4 weeks (min) with DTPCV2	For three dose series – 4 week (min) with DTPCV3			Not recommended if >24 months old
Measles [8]		9 or 12 months (6 months min, see footnote)	2	4 weeks (min) (see footnote)				Co-administration live vaccines; Combination vaccine; HIV early vaccination; Pregnancy

Optimal timing for routine MCV1 and MCV2

In countries with ongoing transmission in which the risk of measles mortality among infants remains high, MCV1 should be administered at 9 months of age. In these settings, on-time delivery of MCV1 is important to ensure optimal protection during the susceptible period in infancy. These countries should administer the routine dose of MCV2 at age 15–18 months. The minimum interval between MCV1 and MCV2 is 4 weeks.

In countries with low levels of measles transmission (i.e. those nearing measles elimination or verified as having eliminated endemic measles virus transmission) and therefore the risk of measles virus infection among infants is low, MCV1 may be administered at 12 months of age to take advantage of the higher seroconversion rates achieved at this age. Increasing the age of admin-

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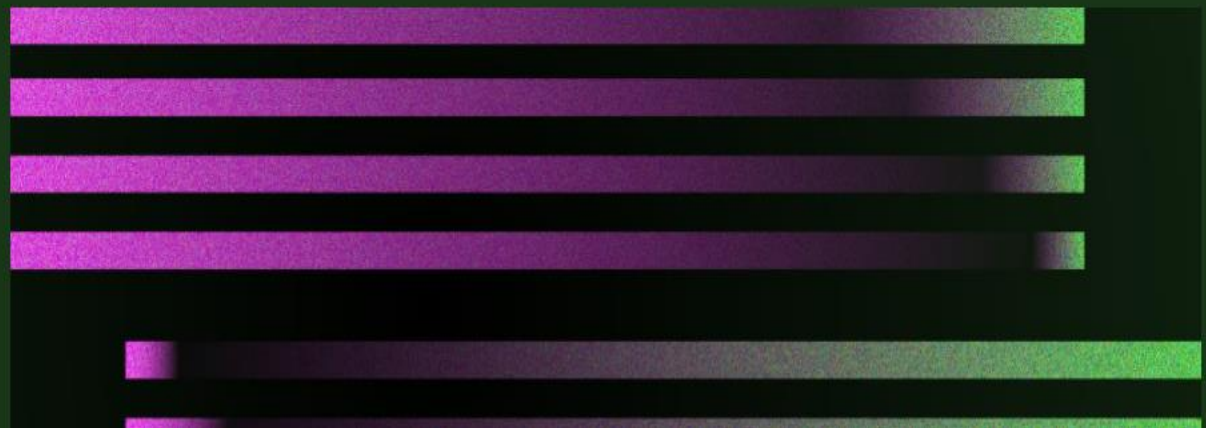

VACCINATION COVERAGE

of **95%** or more

can prevent

measles outbreaks

CDC

World Health Organization

MEASLES

MEASLES IS PREVENTABLE THROUGH TWO DOSES OF A SAFE AND EFFECTIVE VACCINE.

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Francisco J. Álvarez García

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Meningococo C
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